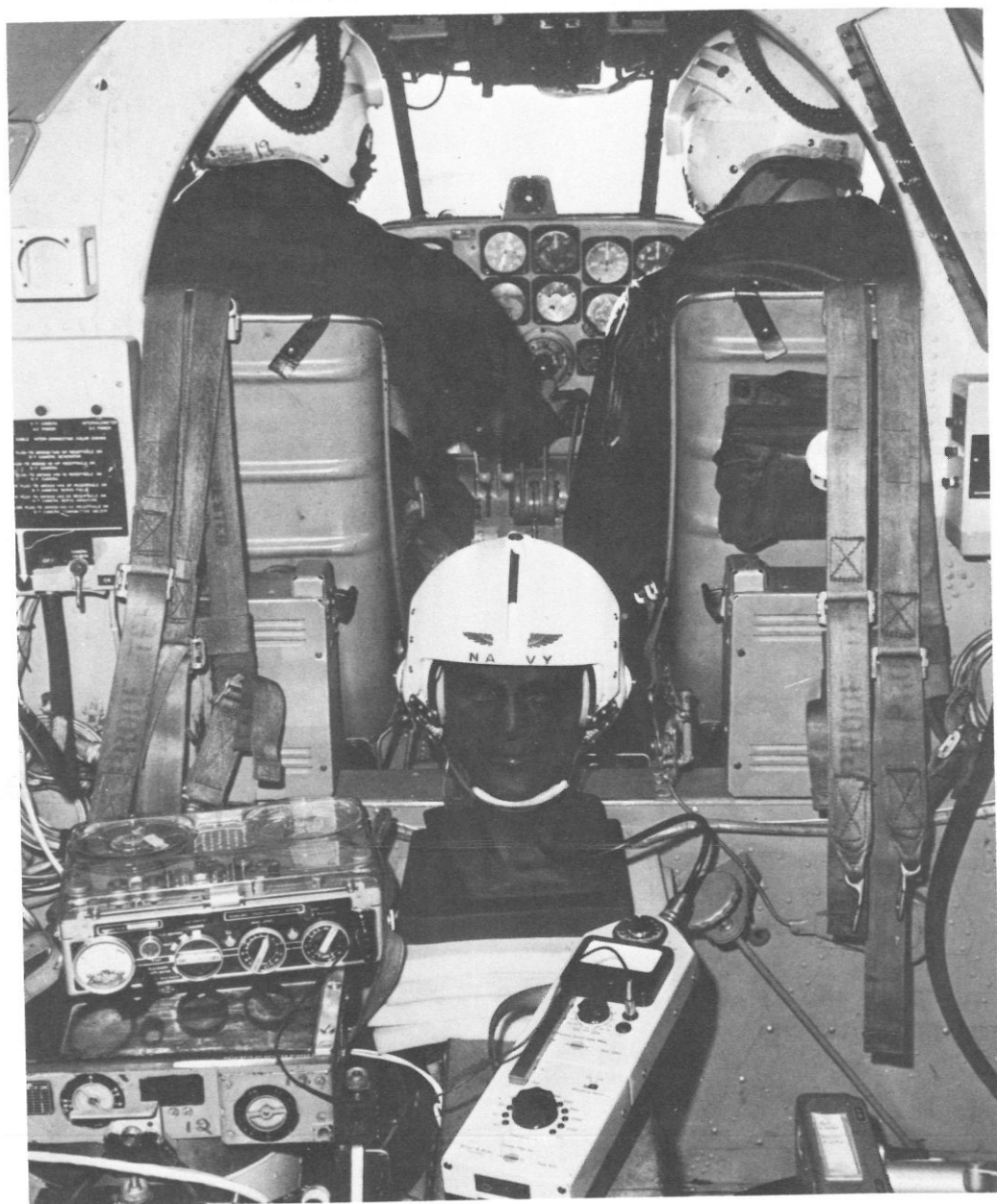




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**Credits:** All pictures are Official Navy Photographs unless otherwise indicated.

**COVER:** Preventing occupational hearing loss is a major concern of the Navy Medical Department, as health problems continue to be created by intense noise ashore and afloat. In addition to the danger of blast and impulse noise from gunfire and rockets, exposure to loud noises such as those created by jet and propeller-driven aircraft, marine engines, and industrial activities may result in hearing loss. Hearing conservation programs have therefore been set up throughout the Navy as part of the overall occupational health effort. Our cover shows a flight helmet being tested on a specially designed manikin by the Naval Aerospace Medical Research Laboratory, Pensacola, Florida. From tests such as these come new hearing safety devices.

For another look at Navy occupational health, see the report of the NRMC Charleston program on pages 18-19.

The continued support of the Media Division, Educational Programs Development Dept., Health Sciences Education & Training Command (HSETC), NNMC, Bethesda, Md., is gratefully acknowledged.

**CORRESPONDENCE AND CONTRIBUTIONS** from the field are welcomed and will be published as space permits, subject to editing and possible abridgment. All material should be submitted to the Editor, *U.S. NAVY MEDICINE*, Code 0010, Bureau of Medicine and Surgery, Washington, D.C. 20372.

**NOTICES** should be received not later than the third day of the month preceding the desired month of publication.



The Surgeon General and Mrs. Custis (far right) greet Medical Department families at festivities honoring the 63rd anniversary of the Dental Corps (August 1975).

# from the Chief

As we approach the new year it is important to pause and consider why there is a Navy Medical Department, for 1976 will continue to challenge our skills, initiative, and resilience. In September at the Specialties Advisory Conference held here in Washington, members of the Directors of the Clinical Services Committee developed and presented what I consider to be an outstanding description of our role. Entitled "Theorems for Navy Medicine," the words speak to our physicians but are applicable to every member of the Medical Department, officer or enlisted, military or civilian. They are quoted below for your consideration as an eloquent expression of the true reason for our existence.

- ★ Military Medicine is comprehensive medicine differing in no way from medicine generally, except that it is sometimes provided under unique and varied circumstances in which the customary patient-physician relationship may be subordinated to line command requirements.
- ★ Navy Medicine is an integral component of the Navy Department.
- ★ A Naval Medical Officer is uniquely that: a physician and officer, neither one to the exclusion of the other, but both.
- ★ There can be no room for divided loyalties in this profession.
- ★ In order to maintain a complete and effective naval medical capability, it is necessary that we maintain a capability to provide a full spectrum of professional services, training, research, and practice opportunities, and provisions for administrative pathways to effectively allocate our resources both during peacetime and when at war.
- ★ Full integration and coordination of the daily practice of military medicine in its broadest sense, including industrial and occupational health, ambulatory health care, inpatient services, preventive medicine, and social and rehabilitative services, within the mainstream of Navy Department activities is in the best interests of the Medical Department individually and the Navy Department collectively.
- ★ Credibility for Navy Medicine, both within and without the Department of the Navy, in the future, as in the past, depends on a clear understanding and acceptance of these premises.

Happy Holidays!



# SCHOLARS' SCUTTLEBUTT

## OPERATIONAL MEDICINE RESIDENCY: A NEW TRAINING OPPORTUNITY

One of the major needs of the Navy Medical Department, today and in the future, is for trained, qualified, and enthusiastic physicians in operational medicine. For most of you, just beginning Navy medical careers, operational medicine is a radical departure from the traditional clinical specialties and the laboratory and ward experiences you encountered in school.

What is operational medicine? Simply stated, it is the field of medicine directly concerned with ships, aircraft, and Marine units, and the health of the people who man them. Operational medicine encompasses many disciplines: research, aerospace medicine, hyperbaric physiology, environmental medicine, infectious disease, nuclear medicine, amphibious operations, combat surgery, casualty regulations, logistics, operational planning, and occupational safety, to name just a few. It is one of the last areas of medicine in which the physician is guaranteed broad professional experiences: in occupational medicine you don't get placed in a pigeonhole and left there for your entire career.

Until recently, Navy medical officers became expert in only one or two small areas of operational medicine. Today it's different. We now see the need to develop in the Navy our own brand of specialist for whom operational medicine will offer a challenging and professionally rewarding career.

To help provide us with Navy physicians expert in this growing field, the Medical Department is establishing a 5-year operational medicine residency program. Under the direction of the assistant chief for operational medical support (BU-MED Code 5), the new residency will be available for students who graduate in 1977.

Although structured along the lines of traditional programs, the operational medicine residency will be distinguished by training experiences only Navy medicine can provide. Basic or graduate-level-one year training will be conducted in one of our major teaching hospitals under the direction of a program director, board certified in

preventive medicine. Basic rotations will be served in medicine, surgery, laboratory medicine, and radiology. Two months of the first year will be spent in elective study directly concerned with operational medicine. At the successful completion of basic training, the officer will enter a civilian university for one year of experience in epidemiology, biostatistics, health care administration, environmental health, and laboratory methods. With this training, officers should be eligible for a master's degree in public health.

The third year combines both classroom and practical training, either in an academic setting or at a naval activity such as the Naval Aerospace Medical Institute, the Naval Undersea Medicine Institute, the Naval Environmental Health Center, field medical service schools, or environmental preventive medicine units. The fourth and fifth years of training will provide more experience in subspecialty areas, emphasizing health care administration, epidemiology, and operational medicine research.

At the end of the 5-year program, officers will be eligible for examination by the American Board of Preventive Medicine. And they will be qualified to participate in some of the most professionally demanding and satisfying areas of fleet support.

Within the next several months, we will announce the location of the graduate-level-one positions in the operational medicine residency. Watch this column for information on how to apply.



TEAM-MATES.—ENS Rick Bosshardt administers the Navy oath of office to his wife, Barbara, at the Navy Recruiting District Office, Miami, Florida. Both are Navy-sponsored students in their second year at the University of Miami School of Medicine. The Navy medical student contingent at the University of Miami is the largest in the nation, and enjoys many activities under the direction of CDR Jack Hagan, MC, USNR-R, medical school liaison officer.

# Definitive Treatment of Compartment Compression Syndrome of the Leg

LCDR G.J. Thomas III, MC, USNR

This paper has two purposes:

1) To recommend partial fibulectomy as the treatment of choice in advanced and moderately advanced cases of compartment compression syndrome of the leg (CCSL),\* particularly in military and combat-related circumstances where early, nondisabling, definitive treatment that allows prompt return of the patient to full duty is preferred.

2) To reiterate the need for early recognition and appropriate treatment of CCSL.

## CASE REPORTS

Although at least 288 cases of CCSL have been reported in the world literature, no more than 20 of these cases specifically involve a transfibular fasciotomy, and none have reported the use of mid-fibulectomy fasciotomy (MFF) in a four-year-old patient. The MFF modification is similar to the procedure described by Dr. Lloyd Taylor (81), and presented in the literature by Kelly and Whitesides (43), Ernst and Kaufer (21), and Hughes and Lineberger (37). In this report I will

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Dr. Thomas is in the private practice of orthopaedic surgery in the Lake View Terrace area of Los Angeles. Address: Suite 104, 11600 Eldridge Avenue, Lake View Terrace, California 91342. From July 1973 to June 1974 he was a staff member at Naval Hospital Port Hueneme, California. He was chief of orthopaedic surgery there from July 1974 through June 1975. \*In this report, compartment compression syndrome of the leg is defined as any naturally occurring pathological condition, regardless of etiology, that is localized to one or more compartments of the leg and is manifested by vascular compromise, muscle ischemia, and edema, with increased intracompartmental pressure.

describe three cases of compartment compression syndrome of the leg, two of which were treated with mid-fibulectomy fasciotomy.

### CASE NO. 1

This 27-year-old career Navy equipment operator was essentially well until 1630 on 20 December 1974, when he accidentally shot himself in the right mid-leg with a .32-caliber automatic pistol while cleaning his gun. The gun had been held securely between his knees. The bullet struck the medial aspect of his right calf, traversed the deep posterior compartment of his leg, shattered the mid-fibula, and exited distal and lateral to the entrance wound at a 35° angle (Figure 1).

The patient was admitted to Naval Hospital Port Hueneme, California, at 1810. The right leg was relatively swollen, and the skin somewhat glossy. A 4 mm entrance wound was noted near the posterior border of the tibia, 13 cm distal to the medial tibial joint line of the knee. A 7.5 mm exit wound was noted just lateral to the fibula, 19 cm distal to the mid-lateral tibial joint line of the knee. The leg was tender to palpation in all compartments. Right calf circumference was 42 cm, compared to 39 cm on the left. The dorsalis pedis pulse was not palpable initially; however, a posterior tibial pulse registered 2+/4+. The right foot was numb at the first dorsal web space with diffuse paresthesias about the remaining dorsum of the foot. The patient was unable to dorsiflex his right foot because of anterior compartment pain, and unable to fully plantar flex his foot because of posterior compartment pain. The lateral compartment was the least painful.

An arteriogram on admission revealed a patent anterior tibial artery (Figure 2). Delayed films (29) revealed no extravasation of dye into the soft tissues, but subcutaneous air was apparent (Figure 3). Wound cultures were negative.

The patient's symptoms became more severe despite elevation of the right leg and administration of narcotics. The circumference of the leg increased to approximately 43 cm. Because of his history of severe injury and his moderately severe CCSL, the patient was taken to surgery at 1900. A mid-fibulectomy fasciotomy was successfully accomplished under spinal anesthesia without a tourniquet.

The patient's postoperative course was uneventful. He was placed in a soft compression dressing immediately after the

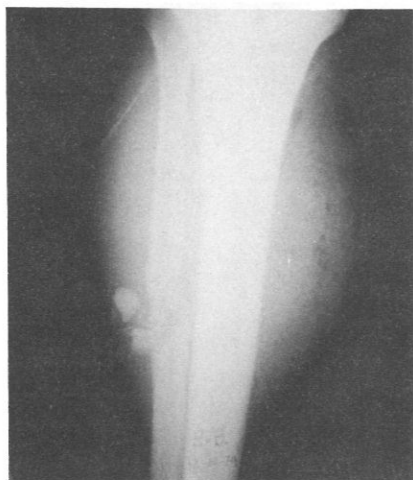


FIGURE 1. The admission X-ray showed a shattered mid-fibula.



FIGURE 2. The admission arteriogram revealed a patent anterior tibial artery.

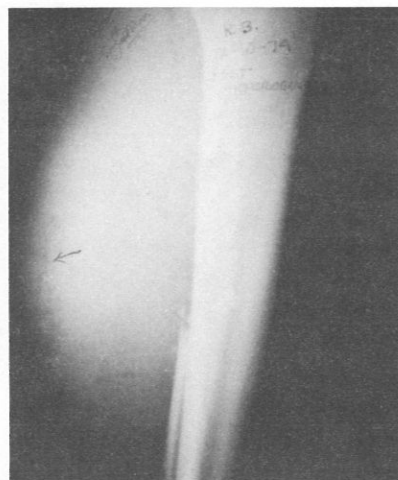


FIGURE 3. The post-arteriogram film showed no extravasated dye. Note subcutaneous air.



FIGURE 4. After the operation, the patient bears a 16.5 cm scar on right leg.



FIGURE 5. Final X-ray of case #1. Symmetry of the legs was maintained with minimal lateral scar to the affected leg.

operation, and treated with analgesia, leg elevation, Varidase for four days, a single-dose diuretic, and rest. By the third postoperative day, despite a temperature of 100°, he was able to dorsiflex his ankle without significant pain.

The patient returned to light duty on the 17th postoperative day, and to full duty 40 days after the operation. His only residuum was a 16.5 cm lateral longitudinal scar on the right leg (Figure 4). His result is excellent with no weakness, paresthesias, fatigue, pain, or limitation of motion of the right leg (Figure 5).

#### CASE NO. 2

This 18-year-old Army private, previously in good health, was involved in a head-on collision with another automobile while driving a small car on 17 June 1973. He sustained multiple bruises and abrasions, and open fractures of the right patella, tibia, and fibula. He was taken by ambulance to a

community hospital where his condition stabilized. On the second hospital day he was taken to surgery. A small chip fracture of the patella was excised and the traumatic wounds of the right knee were closed. Without the use of a tourniquet, the right mid-tibia was then debrided, reduced, and secured by a Lottes nail. Complete four-compartment fasciotomies were accomplished using scissors. Although the patient's postoperative clinical appearance was temporarily favorable, his right leg continued to swell.

The patient was transferred to NH Port Hueneme approximately 84 hours after injury. Here delayed capillary filling of all toes was noted; the dorsalis pedis pulse was not palpable because of swelling described as "tremendous." The right foot was insensitive to pain, although position sense was intact. The patient's temperature was elevated, and there was no drainage from the wound.

Gangrene of the toes of the right foot developed, with liquefaction necrosis of the plantar compartments. On 16 July



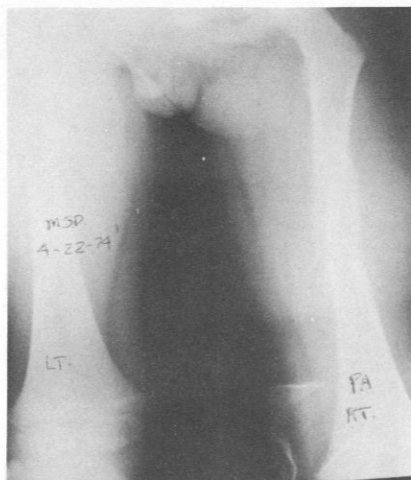


FIGURE 6. This 4-year-old patient sustained a closed comminuted midshaft fracture of the right femur in a motorcycle accident.

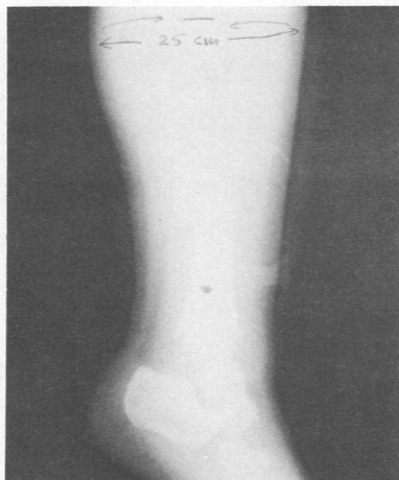


FIGURE 7. The patient's calf measured 25 cm on the fourth hospital day. This X-ray shows the left leg swelling and the compartment compression syndrome.

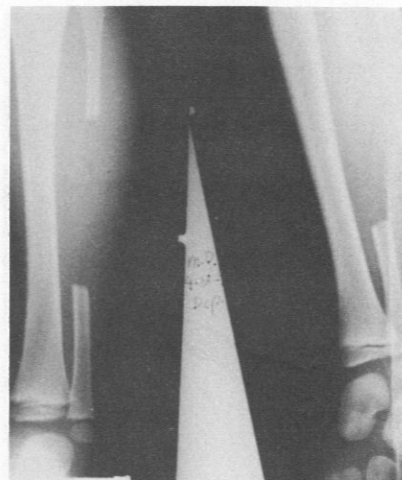


FIGURE 8. A mid-fibulectomy fasciotomy was performed.



FIGURE 9. X-rays taken 4½ months after injury demonstrated a regenerating left fibula.



FIGURE 10. X-rays taken 4½ months after injury revealed a healed right femur.

1973, debridement and amputation of all toes was accomplished. The patient was then transferred to Letterman Army Hospital where a two-stage Syme's amputation was eventually required.

His final diagnoses were Volkmann's ischemic contracture of the right leg, and dry gangrene of the right foot. He is not permanently disabled.

#### CASE NO. 3

This 4-year-old male had a limited history of asthma and a mild seizure disorder. On 22 April 1974 he was involved as a passenger in a solo motorcycle accident and sustained a closed comminuted midshaft fracture of the right femur (Figure 6). On admission to NH Port Hueneme his right thigh was swollen, bruised, and deformed. There was also a bruise over the posterior aspect of his left ear. His fractured right femur

was treated by Bryant's traction, with X-rays documenting acceptable reduction.

On the third hospital day at 1730 his left foot appeared cyanotic and without pulse. (At 1500 it had been "normal.") The left leg was diffusely tender with distinct induration posteriorly. Sensation was decreased about the entire foot, and any attempt at passive or active motion caused the patient to cry. A diagnosis of CCSL was made, and Bryant's traction was discontinued.

The fractured right leg was then placed in Russell's traction, while the left leg was treated with soft compression dressings, elevation, and initial heat, as suggested by consultation with a vascular surgeon; later, ice was employed. A minimally palpable dorsalis pedis pulse returned; however, the pain increased, and the calf measured 25 cm on the fourth hospital day (Figure 7).

At 1730 on the fourth hospital day an emergency mid-fibulectomy fasciotomy was performed under general anesthesia without complications (Figure 8). The color of the foot improved immediately and a good dorsalis pedis pulse emerged.

The muscles of all compartments bulged from the wound at surgery and were pale, with contractility and bleeding. (A pathology report documented advanced ischemic change with loss of striations and absent nuclei.) The skin and subcutaneous tissue were then closed loosely over the defects, and a soft, light compression dressing was applied.

The wounds healed *per primam intentionem*. The patient was placed in a 1½ hip spica cast on the 29th hospital day, and was discharged from the hospital in his cast on the 31st hospital day. The cast was removed after having been on five weeks (some 2½ months after the injury).

When the patient was last seen 4½ months after his injury, his legs were equal length and his gait was normal. The circumference of his left leg was 20 cm; an electromyogram did not reveal any nerve damage. X-rays demonstrated a regenerating left fibula (Figure 9), and a healed right femur (Figure 10). His only residuum was a 9 cm, lateral longitudinal scar on his left leg.

## HISTORY OF CCSL

The literature describes three distinct compartment syndromes of the leg: anterior, lateral (peroneal), and posterior. These syndromes may exist independently or in various combinations in the same patient. The posterior compartment is subdivided into deep and superficial compartments, the former having been described as a separate compartment compression syndrome of the leg (52).

Following Volkmann's (84) reports in 1872 of arterial occlusion with resulting muscle ischemia and contractures of the forearm, and Jepson's (40) demonstrations in 1926 of the usefulness of fasciotomy in preventing ischemic contractures in animals, Severin (78) and Vogt (83) independently described the anterior tibial compartment syndrome (ATCS), which is the historical prototype for the remaining compression syndromes of the leg. Subsequent reports of Sirbu *et al* (79) in 1944, Horn (36) in 1945, Hughes (38) in 1948, and Carter *et al* (11) in 1949, presented eight, two, three, and nine cases of ATCS respectively. Phalen (66) and Pearson (65) also described and discussed the diagnosis and treatment of the condition in 1948, to increase the total number of acute cases. But it was not until 1956 that the first case of *chronic* ATCS was described, by Mavor (53).

Lateral (peroneal) compartment compression syndrome was reported by Blandy and Fuller (5) in 1957, Edwards (20) in 1969, and Lunceford (51)

in 1965. Zipperman's (89) Korean War experience revealed an association of vascular injuries with ATCS and the need for fasciotomy in treating such cases. As the pathogenesis of these conditions remained obscure and the treatment results unfavorable, the 1950s and early 1960s witnessed further review of Morentz (58), Kunkel *et al* (47), Leach *et al* (48), Higgins (34), and French (25).

This data prompted Colt (14), among others, to plead for early fasciotomy in the treatment of ATCS. With prompt treatment he demonstrated improved result. Nevertheless, the results of simple fasciotomy remained unfavorable, with only 13% of patients reported in the world literature through 1972 being cured if drop foot were present at the time of surgery (6). In CCSL, a full recovery rate of 22% was noted in patients undergoing fasciotomy, regardless of whether or not there was drop foot at the time of surgery (6).

The late 1960s and the 1970s produced more reports, reflecting Kelly and Whitesides' unpublished advocacy in 1955 of transfibular fasciotomy of all compartments in selected cases. Matsen and Clawson (52) reported 14 cases of deep posterior compartment syndrome of the leg, and called for early decompression using a medical approach. Some 64% of their cases had significant post-operative deficits; they did not use transfibular fasciotomy. Feagin and White (23) used transfibular fasciotomy in three reported cases, obtaining excellent results in each case despite CCSL. In my own series of three severe cases of multiple compartment compression syndromes of the leg, two patients treated by mid-fibulectomy fasciotomy had excellent results, while one patient treated soon after injury by a simple four-compartment fasciotomy eventually required a Syme's amputation.

## ANATOMY

The leg below the knee is similar in shape to a truncated cone. If we consider the volume of such a cone to be 406 cm<sup>3</sup>, as it might be in a person weighing 70 kg, then the volume of the corresponding fibula would be about 24 cm<sup>3</sup> (Figure 11). This represents a 6% volume of the leg section involved in a CCSL.

The three major compartments of the leg— anterior, lateral (peroneal), and posterior—are shown in Figure 12. This is not to deny the existence of *four* compartments, but to classify them according to their relationship to the interosseous



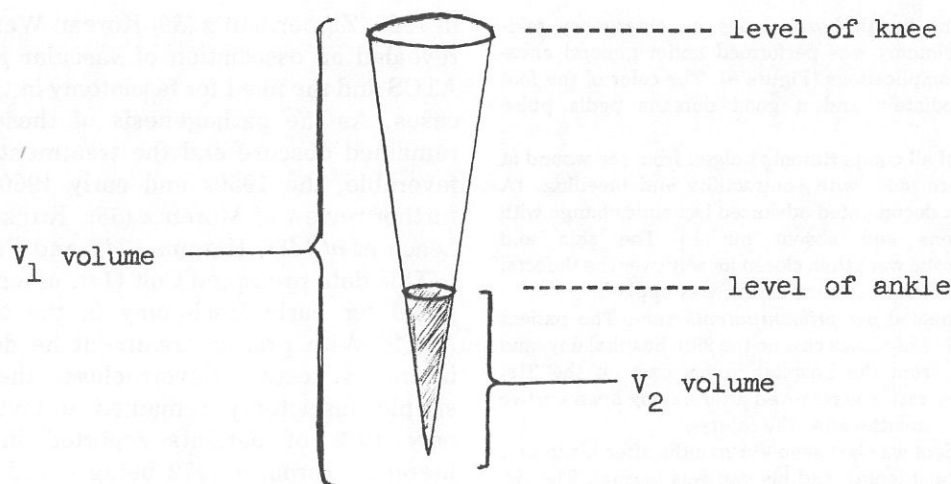


FIGURE 11. Volume of a truncated cone as  $V_1 - V_2 = \frac{11}{3} r^2 h$ . ( $r$  = radius;  $h$  = height.)

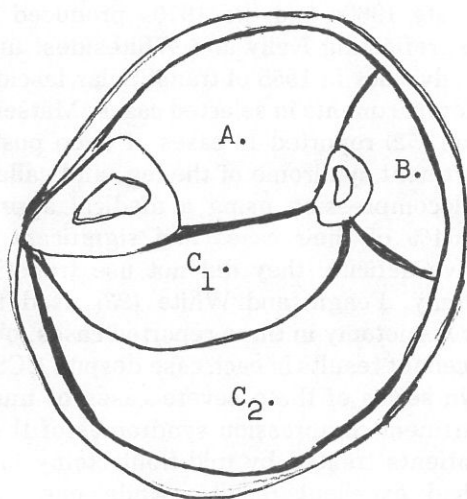


FIGURE 12. Three compartments of the leg (schematic):

- A. Anterior compartment
- B. Lateral (peroneal) compartment
- C. Posterior compartment
  - 1. Deep compartment
  - 2. Superficial compartment

membrane. The posterior compartment is composed of superficial and deep portions, each representing a distinct anatomical set of relatively rigid boundaries.

In 1919 Campbell and Pennefather (10) noted that the arterial branches of the anterior compartment were so minute that they were, in effect, end-arteries. Hughes (38), in his 1948 article, gives an excellent review of this aspect of the anatomy. For some reason, the extensor digitor-

um longus muscle is the least affected of the three muscles involved in ATCS (11). When all compartments are involved in an injury (which may occur more frequently than is realized), the flexor hallucis longus muscle is thought to be the most susceptible to ischemia (77).

Several articles in the literature give excellent detail regarding the anatomical variations and structure of the compartments of the leg (6,7,11,13,25,28,35,36,46,47,52,58,59,65,66,67,86). Because each compartment is attached to the mid-portion of the fibula, this is the only area in the leg where a localized procedure can completely decompress all compartments at once. In accomplishing mid-fibulectomy fasciotomy, some 50% of the volume of the fibula is removed; thus the volume of the leg is reduced by approximately 3%, allowing for early skin closure when decompression of the fascial compartments is instituted promptly. In conjunction with other measures to be outlined in the discussion of treatment, this 3% increase in available space will permit the resumption of blood flow to ischemic muscles, even if only temporarily.

## DIAGNOSIS

CCSL occurs in seven basic combinations, the seventh involving all compartments simultaneously (Figure 13). Feagin and White (23) call this seventh combination "Volkmann's ischemia of the leg." It is the indication for fibulectomy-fasciotomy.

The isolated anterior compartment syndrome is the most common in the literature, followed by the posterior compartment syndrome, combination compression syndromes and, finally, the lateral compartment compression syndrome. Anterior and posterior compartment syndromes both occur as acute and chronic conditions, while to date the lateral and combination compression syndromes occur only as acute. Although chronic forms of all categories cannot be excluded, they are not yet reported.

CCSL has been diagnosed most frequently after exercise ischemia (5,6,18,38,83), trauma (15,26), open reduction and internal fixation of fractures (33), and emergency (15,39) or elective arterial surgery (17,67). CCSL has also been diagnosed in burns (1), local hemorrhage (3,11), after rupture or femoral artery hemorrhage (32), systemic hemorrhage (41), isolated closed fracture of the fibula (74), crush syndrome in coal miners (4), snake bites (27), vascular spasm (32), closure of anterior tibial compartment fascial defects (7,87), application of a bowleg walking brace (85), grand mal seizures (9), in diabetes mellitus and arteriosclerosis obliterans (34), and in several other situations, including eclampsia and metabolic disorders (11).

The *sine qua non* for the diagnosis of acute CCSL involving any or all compartments in an otherwise healthy subject is pain exacerbated by motion, resembling the severe degree of pain present in a sore muscle after exercise. Tension, tenderness, edema, inflammation, and glossy skin over the affected compartment are frequently observed. Palsy, paresthesias, cyanosis, and diminished or absent pulses also occur. When the anterior tibial compartment syndrome is present,

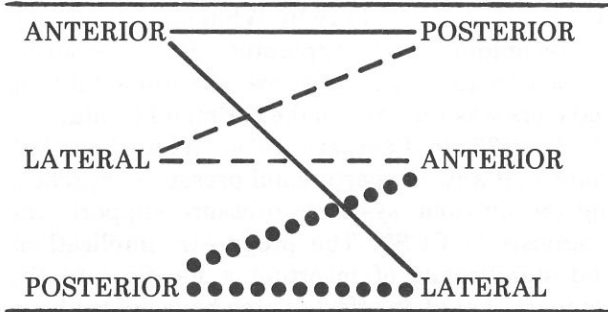


FIGURE 13. Basic combinations of CCSL.

ankle dorsiflexion accentuates the pain; whereas in the posterior tibial compartment syndrome ankle and toe *plantar* flexion accentuates the pain. In lateral compartment syndromes eversion may increase symptomatology (Figure 14).

In compartment syndromes, pulses seem to be present until late in the disease, as is the case with a true palsy. In ATCS drop foot is often a late finding and a bad prognostic sign, regardless of the etiology of the syndrome. Paresthesias due to ischemia may occur early in the disease (62), and are located on the plantar surface of the toes and foot, excluding the instep in deep posterior tibial compression syndrome (52). In ATCS paresthesias occur about the dorsum of the foot, though initially the first dorsal web space is involved (11). Lateral compartment paresthesias seem to involve the lateral leg and lateral dorsum of the foot. Fever, elevated creatinine phosphokinases, elevated sedimentation rates, hyperkalemia, and acidotic venous blood can occur with varying degrees of muscle necrosis (17) in ATCS.

The usefulness of measuring intracompartmental pressure in CCSL is currently being

Compartment Involved	Paresthesias	Palsy	Tenderness	Pain accentuated by	Pulses	Edema	Cyanosis
Anterior	Dorsum of foot, and first web space	Drop foot	Anterior tibial compartment	Ankle dorsiflexion	Usually present until late in the syndrome	Yes	Occasional, and late
Posterior	Sole of foot and toes, except instep	Weak plantar flexion	Distal medial tibial area	Plantar flexion	Usually present until late in the syndrome	Yes	Occasional, and late
Lateral	Lateral leg	Weak eversion	Lateral leg	Eversion	No pulse involved in isolated lateral compartment syndrome	Yes	Rare

FIGURE 14. Clinical findings in compartment compression syndrome of the leg.

promoted in this country by Whitesides *et al* (86). A technique and apparatus for measuring intracompartmental pressure experimentally in cadavers was reported in the German literature by Holden (35) in February 1974. Whitesides (86) notes that any compartmental pressure approaching the diastolic systemic pressure supports the diagnosis of CCSL. The prognostic implications and significance of inserting a needle into the compartment of an affected area have not yet been clearly defined, and routine use of this technique in diagnosing CCSL may not be entirely safe or necessary. The intracompartmental detection of an acid pH by needle aspiration has also been used to aid in the diagnosis of CCSL (28).

Soft tissue edema is usually apparent on X-ray, and arteriograms can at times suggest arterial insufficiency, although they are frequently normal despite definite clinical ATCS after exercise. The value of delayed filming in detecting intracompartmental hemorrhage, not seen on routine arteriograms, as a cause of ATCS has recently been reported by Greenbaum (29). Exercise as tolerated during arteriography can also be useful in confirming a diagnosis of muscle ischemia not related to ATCS.

The measurement of peripheral blood flow using a Doppler ultrasonic flowmeter can verify the presence of arterial obstruction in some cases of CCSL (31,72), thus avoiding the loss of time often associated with arteriography and waiting for X-ray rooms.

Chronic compartment compression syndrome of the leg is diagnosed by the recurrence of symptoms somewhat milder than are seen in the acute syndromes, and that differ in their characteristic resolution with rest, and relief by surgical intervention. These chronic cases seem to be distinctly apart from true intermittent claudication (53).

Electromyogram findings have revealed denervation potential and electrical silence secondary to denervation in some cases of anterior tibial compartment syndrome (11,13,48).

Frequent examination of affected limbs in suspected CCSL is helpful, particularly when the calf circumference is recorded every two hours. Any increase in calf circumference of more than half a centimeter in three to four hours with associated findings of CCSL should help to establish the diagnosis. The final diagnosis of CCSL rests with the clinical impression, although prompt ancillary procedures are sometimes helpful.

The differential diagnosis should include osteomyelitis, cellulitis, "shin splints," intermittent claudication, stress fracture, thrombophlebitis, and tenosynovitis. In none of these conditions is sensory or motor impairment evident as in CCSL. The localization of pain over the involved muscles also distinguishes CCSL. There is no crepitus in CCSL as is seen in tenosynovitis.

## TREATMENT

Any case of CCSL can be diagnosed as mild, moderate, or severe, and its clinical stability rated, based on the patient's clinical condition. *All severe cases should be treated immediately by mid-fibulectomy fasciotomy.* Many mild cases can be treated with initial elevation of the leg to 35° above the level of the heart; soft, loose webrile, Ace-wrap, light compression dressings; and strict rest. As have others, I have empirically used occasional diuretics (35,41), aspirin, streptokinase-streptodornase oral tablets for three to four days, absent or limited use of saline intravenous solutions, and occasional ice in the initial treatment of mild and sometimes moderate cases. Some authors think that use of sympathetic and epidural blocks is beneficial; others also use anticoagulants (35), alcohol compression dressings (41), sodium bicarbonate (17), cortisone, and low molecular weight dextran (54). When general anesthesia is used at surgery, halothane causes the least decrease of blood flow to the ischemic limb (19).

Despite several instances of excellent recovery in mild cases, and somewhat rare instances of recovery in moderate cases treated conservatively, fasciotomy should not be delayed as described in standard surgical textbooks. The best indicator of the need for surgical intervention in questionable cases is the degree of change in the patient's condition. Any deterioration of the leg should lead to a decision for fasciotomy in moderate cases; any moderate case which is rapidly progressive should be treated by mid-fibulectomy fasciotomy. Yet it is in this group of patients that the literature reflects an apparent hesitancy to use adequate surgical intervention. Such "adequate surgical intervention" in moderate cases often means mid-fibulectomy fasciotomy; it almost *always* means MFF in severe cases.

Early fasciotomy has been increasingly advised by many authors (8,12,14,22,33,52,55,59,63,68,80,86). As in the case of Volkmann's ischemia of



the upper extremity, early fasciotomy increases the number of good results (57). Fasciotomy is also now advised in anterior tibial compartment fascial defects as opposed to patch grafting and primary repair (7). Bate (2) has devised a pistol-shaped fasciotome with an inverted "U" cutting edge, said to be less traumatic than scissors. Reneman and Wieberdink (69) reported the use of a doubled wire with a free cutting edge at its bending point; the remainder of the wire was covered with polyethylene tubing to avoid non-fascial trauma. Treanor (82) has demonstrated that local nerve blocks are effective in clot resolution in the treatment of CCSL.

In war wound cases, Schmitt and Armstrong (73) reported "the need for fasciotomy was second only to infection as a factor leading to eventual amputation"; and although the time required to evacuate casualties from combat areas in Vietnam to a hospital was reduced to 45 minutes (24), the results of arterial injuries of the leg with associated soft tissue injury were not improved significantly since the Korean War. When the popliteal artery was injured, 60% of the patients were treated unsuccessfully (54). Fasciotomy by fibulectomy was not used in many of these cases. The rate of amputation in some patients with fractures or arterial injuries, or both, was 36%. Again fasciotomy by fibulectomy was not frequently employed in these injuries, although the descriptions of the injuries suggest that such treatment may have benefited the patients and perhaps avoided some loss of limb and late complications such as contracture, drop foot, muscle necrosis, gangrene, and amputation. Kelly and Whitesides (43), Ernst and Kaufer (21), Hughes and Lineberger (37), and Feagin and White (23) are the primary advocates of fibulectomy in fasciotomies for CCSL, particularly when the deep posterior compartment is involved. Matsen and Clawson (52) believe that medical decompression of the deep posterior tibial compartment is adequate, although they reported "permanent" complications in 9 of their 14 published cases (52). Mid-fibulectomy fasciotomy may be helpful, and even simple "anticipating fasciotomies" (39) may be better than late drastic measures.

I use a standard Henry approach for mid-fibulectomy fasciotomy. In August 1973 Feagin and White (23) reported essentially the same approach and operation, used for essentially the same purpose. In this procedure a mid-section of the fibula is removed and the underlying fascial

compartments, as evidenced distinctly by bulging muscle, are incised throughout their length with scissors. In children the periosteum is left intact; the precepts of Kelly and Whitesides (21,43) in accomplishing partial fibulectomy for fasciotomy are observed by avoiding excessive trauma and transection of branches of the superficial peroneal nerve. The procedure is performed without the use of a tourniquet, preferably under spinal anesthesia. The cut bone edges are smoothed, and the wound loosely closed through skin and subcutaneous tissue only. The wound is dressed lightly with webrile and Ace wrap over a sterile dressing. If there is significant resistance to closure, the wound is packed open with sutures in place; these sutures can usually be tied on the ward under sterile conditions in four or five days, with or without appropriate antibiotics as determined by wound culture and sensitivity.

The fibula is not an essential bone (43), and complications of posterior-lateral bowing of the proximal remaining fragment are not seen. When used to treat moderate and severe multiple compression syndromes of the leg, mid-fibulectomy fasciotomy is at least as effective as and often more reliable than simple fasciotomy. Its prime disadvantage is a cosmetically undesirable scar. Its advantages are many: It uses maximum decompression of the leg with minimal trauma. It results in no functional disability, and can be used in youngsters with the expectation for a regenerated fibula. Easily and quickly carried out, MFF reduces the internal volume contents of the leg by at least 3% and permits the interosseous membrane to move freely to a more equilibrated position, ensuring that compression is smoothly, evenly, and equally transmitted to all compartments of the leg. Such results cannot be obtained without at least partial fibulectomy, and may account for the poor results in anterior tibial compartment syndrome even when treated with early fasciotomy. MFF may also deserve a chance in the treatment of anterior tibial compartment syndrome alone; however, experimental studies with this procedure versus simple fasciotomy have not yet been reported.

## PATHOGENESIS

The pathogenesis of CCSL remains unclear, and no unanimously accepted explanation yet exists despite reviews by numerous authors (6,11,36,38,

46,50,52,53,56,64,67). All agree that the end result of the syndrome is ischemia, as described histologically in Scully's (76) classic Korean War injury studies. These investigations showed four stages of postischemic muscle, from normal to complete necrosis. Scully (75) also described excellent criteria for determining the viability of muscle, citing consistency, contractility, and the ability to bleed as excellent guidelines for saving questionable muscle tissue. Color was insignificant, since even pale muscle survived when it bled, contracted, and was full-bodied. Microscopically, separation of fibers, nuclear pyknosis, altered sarcoplasm, and waxy degeneration occurred as classic CCSL ischemia. These microscopic findings confirm the belief that ischemia is indeed the common pathological factor in CCSL regardless of etiology. The significance of venous stasis, particularly in the soleal sinuses with only a supine position, and the relationship of venous stasis to anterior tibial compartment syndrome (44) are documented experimentally and clinically, supporting the 1973 view of Saunders (71) that "no one has ever been able to produce Volkmann's ischemia without venous obstruction."

Ischemia and venous stasis occur in the two main theories of the pathogenesis of anterior tibial compartment syndrome as reviewed by Paton (64). The first theory suggests that the anterior tibial artery is compromised initially (79), with resulting ischemia and edema; Haddy (30) has shown that arterial spasm as a cause of ischemia is unlikely. The second theory suggests that increased intracompartmental pressure occurs initially with secondarily decreasing tissue perfusion and ischemia (6). Since intracompartmental pressure of 50-60 ml/Hg is sufficient to occlude arteries (49), since collateral circulation in intracompartmental muscles of the leg is often limited (10), and since exercise can increase the bulk weight of the muscle by 20% (88), it is easy to subscribe to the latter theory. Indeed, all surgical cases of CCSL seem to document the increased pressure. Because exercise leads to ischemia, and ischemia leads to edema which leads to more ischemia, it is apparent that ischemia and edema become locked in a vicious, escalating local war which ends in muscle necrosis. Also, increased blood flow to practically any limb involved in trauma of any sort (42,61) increases the likelihood of increased intracompartmental pressure when this circle of edema and ischemia is present.

## CONCLUSION

The incidence of amputations and ischemic complications in CCSL remains perhaps unnecessarily high despite increased use of early simple fasciotomy. There seems to be justification for greater use of mid-fibulectomy fasciotomy in treating these conditions. All patients with CCSL who are seen in Navy health care facilities should be considered for possible MFF. The cases presented in this paper, although few, in conjunction with the world literature support this conclusion.

## SUMMARY

Three cases of compartment compression syndrome of the leg are presented. The world literature is reviewed, and the history, diagnosis, treatment, and pathogenesis of CCSL are discussed. A technique of fibulectomy-fasciotomy (mid-fibulectomy fasciotomy) after Kelly and Whitesides (43) is described for treating moderate and severe cases of CCSL.

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## EMERGENCY WAR SURGERY HANDBOOK

Copies of *Emergency War Surgery* have been distributed to each command where medical officers are assigned. Additional copies have been provided to Headquarters, Marine Corps, each Marine division and air wing, and all naval regional medical centers and hospitals. This is the first United States revision of the *Emergency War Surgery NATO Handbook*, originally published by SHAPE in 1957, and is a useful reference for professional staff members and a training aid for surgical and augmentation teams.

For more copies, write: CO, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, Pennsylvania 19120. The stock number of the handbook is 0510-LP-100-4000.

# NAVMED Newsmakers

Mrs. Carrie Biggs will never forget how the Medical Department celebrated the Navy's 200th birthday. There she was, one mile outside Williamston, North Carolina, when the fan belt on her automobile unexpectedly retired from active duty. Who should come jogging to her assistance but **HMCS G.A. Logsdon** and **HM3 R.B. Dobson**, part of a 14-man team observing the Navy's October birthday with a 386-mile run from NRMCC Camp Lejeune to the Bureau of Medicine and Surgery.

A new belt was installed by the corpsmen turned mechanics, and Mrs. Biggs drove off. But a mile down the road the automobile developed a gas leak and burst into flames. Logsdon and Dobson again came running to the rescue. Final score: Hospital Corps 2; Automobile 0.

Not to be outdone by the Camp Lejeune 14, **CAPT Frank Ruliffson** (DC) of BUMED won the two-mile and four-mile championships in the fall jogging and running competitions held recently in Bethesda, Maryland. His time—13:34 in the two-mile and 23:58 in the four-mile—not only made him champ in his own age group (45-49) but top runner for all men entered in these events. A perennial competitor in the District of Columbia contests, **CAPT Ruliffson** also won both events for his age group in the Springtime Meet held last April.

**LCDR Victoria Voge**, one of only three women flight surgeons in the Navy, is the first woman physician to enter the Navy's aerospace medicine residency program. She's training at the Naval Air Development Center, Warminster, Pennsylvania.

Catching up with the others: **LT Sherry Henderson** serves at VC#5, Kadena, Okinawa. **LT Jane McWilliams** is with Training Wing 6, Pensacola, Florida, after a tour of duty at U.S. Naval Station, Keflavik, Iceland. Among her favorite souvenirs of that assignment is Navy pilot **LTJG Andrew Hardman**. They married in the Keflavik base chapel last January.

What could be better than a Big Blue M? It's the symbol of excellence in prescribed drills and exercises among Naval Air Force Atlantic ships. And the men of the **USS John F. Kennedy** medical department have just won the coveted M for the third consecutive year. In the competition for this honor, readiness and standard operating procedures were also evaluated to ensure that the medical department was ready for any contingency.

Medical officer **CDR James E. Wenger** and the other members of the medical department have proved once again that Navy medicine is tops—ashore and afloat.

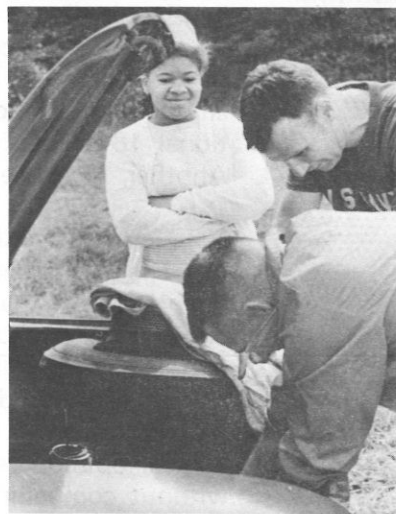


The long run . . .



To BUMED celebrates the . . .

Last June, while traveling to Huntsville, Alabama, in her job as nurse programs officer for Navy Recruiting Area THREE, Macon, Georgia, **LTJG Jane E. Stanovich** unexpectedly became a heroine. The Navy nurse was the first to appear at the scene of a traffic accident involving two semi-trailer trucks. Fully aware that the gasoline tanks of one truck had ruptured, and that there was great danger of explosion and fire, she climbed into the cab to aid the gravely injured driver pinned behind the steering wheel. For her courageous life-saving efforts, **LTJG Stanovich** now wears the Navy and Marine Corps medal. She is believed to be the second Navy woman and first Navy nurse to be so honored.



Navy Bicentennial.



## **NEW NONAVAILABILITY STATEMENT POLICY**

Recent recommendations of the House Appropriations Committee on the FY-76 DOD Appropriation Bill require that a nonavailability statement (DD 1251) be obtained by all CHAMPUS beneficiaries, regardless of service affiliation, who reside within 50 miles of a uniformed service inpatient treatment facility. Obtaining the statement will be a prerequisite to seeking nonemergency inpatient care under CHAMPUS, and a condition for payment to be made with funds authorized by the appropriation bill. Previously, DD 1251's were required only of certain CHAMPUS-eligible dependents of active-duty members residing within 30 miles of an inpatient facility participating in a nonavailability statement test project.

Expanded requirements for use of the DD 1251 will become effective 1 January 1976, unless rescinded by Congress prior to that date. However, there is some indication that the radius may be reduced to 30 miles. No additional resources have been allocated to support the increased workload.

Tests of expanded use of DD 1251 at NRMHC San Diego show that sound management and staff utilization plans are imperative for successful accommodation of this added workload. On the plus side: CHAMPUS-eligible patients have provided the medical center staff with a broadened age group and morbidity spectrum.

## **PROFESSIONAL ADVISORY BOARD REORGANIZED**

The Professional Advisory Board has been reorganized within BUMED. Its new mission is to review and to develop Medical Department policies which presuppose a commitment of human, financial, or material resources and which serve, therefore, to determine the structure of the naval health care delivery system. The board president is RADM E.J. Rupnik (MC).

Medical Department personnel are encouraged to recommend special projects or policies for the board's consideration. Recommendations should assess the impact of the proposed policy in terms of: allocation of resources, command mission requirements, obtainable benefits, possible alternatives, and probable results if such policy is not implemented. Recommendations may be sent to BUMED Code 3.

## **DENTAL OFFICERS GET ADVANCED TRAINING**

Some 120 dental officers—approximately 6.7% of the strength of the Dental Corps—will participate in advanced dental education programs during FY77. This includes 47 officers recently selected by the Dental Training Committee for full-time training at the National Naval Dental Center. Programs there include comprehensive dentistry, prosthodontics, endodontics, periodontics, and oral medicine.

Thirteen officers have been selected to begin or continue oral surgery training in naval graduate training hospitals. In January, 28 officers will be selected from among dental school seniors who apply for general practice residencies. An additional 18 officers will be in postdoctoral fellowships at selected naval activities. Another 14 officers will be in various programs conducted at civilian institutions.

## **MEDICAL BOARD POLICY**

The Commandant of the Marine Corps and the Chief of Naval Personnel frequently direct that a member be referred to a medical treatment facility for appearance before a medical board. These boards are rarely ordered without a recommendation from BUMED.

Medical boards report upon an individual's state of health. They also serve as an administrative board by which the CMC or CHNAVPERS obtains a considered clinical opinion regarding physical fitness for duty. Such boards are not ordered without compelling administrative reasons, even though the reasons may not be readily apparent to medical officers in the clinic or on the ward.

If you have a question about the need to conduct a medical board ordered by CMC or CHNAVPERS, contact BUMED Code 33.

### **"C" SCHOOL SELECTION COMMITTEE ESTABLISHED**

A committee has been established to select hospital corpsmen for C school training. Composed of members from BUMED, the Health Sciences Education and Training Command, and the Bureau of Naval Personnel, the selection committee will convene quarterly beginning in December. At the initial meeting, hospital corpsmen will be selected for classes starting in July, August, and September 1976.

Establishment of the committee ensures that admission to C schools will be competitive, with only the best qualified hospital corpsmen selected for the limited number of training billets. In the past, students were selected on a "first-come, first-served" basis.

These changes in the C school selection process will be included in a forthcoming revision to BUMED Instruction 1510.10C.

### **INTENSIVE CARE EQUIPMENT DEVELOPED**

Two new items of intensive care equipment are recommended for use in Navy medical facilities: the Sunstrand multipurpose medical suction pump, and the General Electric volume ventilator. Both items were developed under Navy sponsorship to meet military requirements. They are portable, easy to operate, reliable even under extremely stressful operating conditions, and provide excellent intensive care. These Navy-developed units should be given preference when similar intensive care equipment must be replaced. Specific information regarding purchase of the equipment can be obtained from: LCDR J.C. Bond, MSC, USN, Naval Medical Research and Development Command (Code 43), Bethesda, Maryland 20014.

### **BUMED COMBATS SHIPBOARD HEAT STRESS**

Over the past four years BUMED has helped document the magnitude of environmental heat stress aboard combatant ships. BUMED studies have demonstrated the physiological impact of heat stress upon the ship's crew, and have determined incidence rates of heat illness afloat. BUMED has also taken the lead in introducing heat exposure limits, and environmental design criteria based upon the functional needs of man; recommending that heat stress monitoring devices be used throughout the fleet; determining the effect of long-term vs. short-term heat exposure on physiological performance, particularly among machinery room personnel; researching the physiological impact of combined effects of heat stress, cumulative fatigue, noise, and toxicity aboard ship; and evaluating the physiological significance of various corrective engineering actions.

### **TRIMIS PROGRAM REORGANIZED**

Major reorganization of the Triservice Medical Information System (TRIMIS) is underway. The DOD Tasking Assignment which established the system has been superseded. It is planned that a TRIMIS Project Office, with a tri-service staff, will be established in DOD to assume program management duties now performed by the TRIMIS Medical Functional Guidance Group and the Air Force TRIMIS Project Management Office. The Principal Deputy Assistant Secretary of Defense (Health and Environment) has been named chairman of the Triservice Steering Group.

BUMED is actively participating in the reorganization. Other BUMED efforts include validation of user requirements, preparation of a TRIMIS automated data processing development plan, and tasking of contractor support to the program. The three service medical departments will also assume larger responsibilities for site planning, installation, and evaluation. ☸

**BUMED STRESS**



# The Regional Occupational Environmental Health Service

**CAPT J.C. Rivera, MC, USN**

No physician can practice good medicine unmindful of his patients' occupation. The blue collar worker, the white collar worker, the farmer, the military man and woman, and even the housewife all encounter occupational health hazards. But many physicians have only limited information about occupational environmental health programs, which may include:

- Surveys of workplace hazards.
- Teamwork with industrial nurses, safety engineers, and industrial hygienists.
- Diagnosis and treatment of occupational diseases.
- Examinations of workers to ensure their placement in jobs appropriate to their health status.
- Knowledge of exposure standards for chemical and physical agents hazardous to the worker.
- Medical evaluation of injured or convalescent workers returning to employment.
- Cost-benefit factors.

In the field of occupational medicine, 1970 will be remembered as the year of the Williams-Steiger Occupational Safety and Health Act, designed "to assure so far as possible every working man and woman in the nation safe and healthful working conditions." The scope of this law includes approximately 57 million working men and women in over 4 million places of business. Both the Act and subsequent Presidential

executive orders in July 1971 and September 1974 directed "each Federal agency to establish and maintain an effective and comprehensive occupational safety and health program."

For the Navy, this was an enrichment of existing occupational environmental health programs designed to protect civilian workers and military personnel. More recently, the Bureau of Medicine and Surgery has directed the establishment of Regional Occupational Environmental Health Services (BUMED Instruction 6260.18), provided guidelines for industrial hygiene services (BUMEDINST 5450.116), and expanded the safety and occupational health programs of medical activities (BUMEDINST 5100.9).

## THE CHARLESTON PROGRAM

The nucleus of the Regional Occupational Environmental Health Service at Naval Regional Medical Center, Charleston, South Carolina, is located at the Naval Shipyard Branch Dispensary. Its mission: to support some 10,000 civilian employees of nearby naval activities, including Naval Shipyard, Naval Supply Center, Naval Station, Naval Facilities Engineering Command, and 15 other small shore and fleet commands. About 20,000 shore-based and fleet military personnel receive occupational environmental health services or support through the Naval Station Branch Dispensary. Medical center civilian and active duty personnel are served at the Shipyard Branch Dispensary or the medical center's

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CAPT Rivera is chief, Regional Occupational Environmental Health Service, NRMC Charleston, South Carolina 29408.

Occupational Health Clinic. Another 1,900 military and civilian personnel from the Polaris Missile Assembly Facility, Atlantic and the Naval Weapons Station are served through the Naval Weapons Station Branch Dispensary. Industrial hygiene services and occupational medicine consultations and technical advice are furnished to about 60 local ships and all shore commands by the Regional Occupational Environmental Health Service.

The Charleston program is best described by discussing the services provided to the civilian employees at the Naval Shipyard, the largest customer.

*The team.* The occupational health team includes physicians, optometrists, industrial hygienists, nurses, and X-ray, laboratory, audiology, and optometry technicians, as well as supporting clerical and administrative personnel. A civilian radiologist and ophthalmologist serve part time. Health physicists and radiation health technicians from the shipyard's Radiation Health Division round out the team.

*Health care.* Medical care is provided, either in the dispensary or through consultants, for occupational injuries and illnesses. Problems not related to the patient's occupation may be seen here initially; patients are counseled, and minor treatment provided to allow the worker to complete his workday. Definitive medical care for non-occupational conditions is provided by private practitioners, usually under federal health insurance plans. All shipyard employees on sick leave for more than seven consecutive calendar days (three working days for other commands) must be evaluated by a physician to determine their fitness to return to duty.

*Physical examinations.* The physical examination program here includes pre-employment, pre-placement, periodic, and disability retirement examinations. One of the most frequent physical examinations is that provided employees who work in radiation-controlled areas. This radiation health examination includes a detailed medical history and a complete physical examination including fundoscopy, tonometry, slit lamp examination, audiometry, internal monitoring for radioactivity, complete blood count, urinalysis, serology, chest X-ray, and electrocardiogram in certain patients. Periodic examinations are also given to employees who require health monitoring procedures for exposure to lead, mercury, asbestos, beryllium, and solvents. Examinations are also

given employees who are frequently exposed to safety hazards: crane operators, fork lift operators, firefighters, and so forth. Voluntary preventive medicine programs include chest X-rays, tetanus immunizations, and screening for diabetes.

*Sight conservation.* The sight conservation program provides eye protection for employees engaged in, or working near, operations presenting eye hazards. Employees in this category are given pre-employment and at least biennial visual acuity tests. Refractions are accomplished as necessary to determine proper corrective lenses and provide prescription-type safety glasses.

*Hearing conservation.* The hearing conservation program is concerned with employees working in areas with noise levels above 85 decibels. Pre-placement, monitoring, and annual audiograms are performed by an audiology technician to detect shifts in hearing thresholds. Employees are furnished with a variety of individually fitted protective devices for the ears, and are indoctrinated in the importance of such protection. When significant hearing threshold shifts are noted, re-assignment of work or occupation is recommended.

*Industrial hygiene.* The industrial hygiene program helps prevent and solve a wide range of industrial health problems. This program involves the recognition, evaluation, and control or elimination of health hazards associated with shipyard operations. These health hazards may be chemical in the form of liquid, dust, fumes, mist, vapor, or gas; or physical, such as extremes of heat, cold, pressure, noise, vibration, illumination, and ionizing and non-ionizing radiation.

*Radiation health.* In connection with the radiation health program, a dosimetry program is conducted to assess the exposure of personnel who work in radiation controlled areas or with radioactive materials. A complete record system maintains exposure totals in compliance with established regulations. The Shipyard Branch Dispensary and the regional medical center both have radiation decontamination facilities.

Occupational medicine has been described as preventive medicine in a specialized community. Industry and monies expended in these programs make good business sense. Every physician who treats work injuries and diseases is to some extent an occupational health physician whose informed support can help strengthen the entire health care program in the community. ☛

# The Occupational Safety and Health Act: Its Impact on Navy Medicine

Because of the impact of the Occupational Safety and Health Act on health and environmental matters, it is felt desirable to present some of the basic provisions of the law to better inform medical and allied personnel of its provisions. Public Law 91-696, the Williams-Steiger Occupational Safety and Health Act (OSHAct), was signed 29 December 1970. The purpose of the law is stated simply: to assure as far as possible safe and healthful working conditions for every man and woman in the nation. The act authorizes the Secretary of Labor to establish mandatory occupational safety and health standards which are applicable to all businesses effecting interstate commerce. The act therefore covers practically every business establishment in the 50 states, the District of Columbia, and our territories.

Safety and health standards have existed for years, but few have ever been strictly enforced. However, the OSHAct grants enforcement authority to the Department of Labor, which is authorized to make unannounced inspections of any workplace covered by the act and, if standards are being violated, to issue citations and penalties. In cases of imminent danger to the employees, the Department of Labor can even shut down an operation. On the other hand, the act provides for rebuttals on the part of the employer.

Standards form the backbone of the law, and a considerable portion of the act is devoted to procedures for promulgating them. In Section 6 of the act, the Department of Labor was directed to issue any national consensus standards or established federal standards that would result in improved safety or health for employees covered by the act. Several definitions are needed here. The term "national consensus standard" is applied to any occupational safety and health standard-producing organization, such as the National Fire Protection Association or the American National Standards Institute. "Established federal standards" are occupational safety and health standards established by an agency of the U.S. Government, for example standards promulgated under the Walsh-Healy Act. The Department of Labor was given two years to accomplish this task.

On 29 May 1971, five months after the effective date of the act, the Occupational Safety and Health Administration (OSHA, the agency established under the Secretary of Labor to administer the act) published the national consensus standards in the Federal Register.

Section 6 also establishes procedures for the Secretary of Labor to promulgate additional standards and to modify or revoke existing ones. Such action can be initiated by any interested person, his representative, a nationally recognized standards-producing organization, the Department of Health, Education and Welfare, or the Department of Labor itself. The procedure may involve a study by an advisory committee. In all cases the proposed rule-making must be published in the Federal Register to give interested persons at least 30 days to submit written comments. If these comments express objections, there are provisions for public hearings.

This standard promulgation process can be time consuming, but there are provisions for quicker action through the publication of emergency temporary standards. In this case, the Department of Labor must determine that certain employees are exposed to grave dangers and that such action is necessary to protect them. These emergency standards are in effect until superseded by standards promulgated under normal procedure, or no longer than six months.

There is one other mechanism to establish standards. The National Institute for Occupational Safety and Health (NIOSH), also created under OSHAct, is directed to prepare "criteria documents" containing recommended standards and incorporating safe work and handling practices for industrial materials. These recommendations are then passed on to OSHA, where a complicated review process similar to that described above is followed.

From the Navy viewpoint, Section 19, Federal Agency Safety Programs and Responsibilities, is perhaps the most far-reaching portion of this legislation. In this section, the head of each federal agency is directed to establish and maintain an effective and comprehensive occupa-



tional safety and health program consistent with the standards promulgated under OSHA. By definition, the term "consistent" means that Navy standards will provide safety and health conditions equal to or better than those which would prevail if the OSHA standards were applied. On 20 September 1974, the President signed Executive Order (EO) 11807, "Occupational Safety and Health Programs for Federal Employees," strengthening EO 11612 of 26 July 1971 which originally implemented Section 19 of OSHA. As provided by the new EO, agency heads shall: (1) appoint an official with sufficient authority to represent the head of the agency to manage the occupational safety and health program; (2) establish an occupational safety and health program and data program, including keeping of records of occupational conditions; (3) establish procedures for adoption of agency occupational safety and health standards; assure prompt attention to reports of unsafe or unhealthful conditions; assure periodic inspection of workplaces by technically competent personnel and prompt abatement of unsafe or unhealthful conditions; (4) provide adequate safety and health training for the different management levels, including supervisory and other employees; and (5) submit an annual report to the Secretary of Labor.

Under EO 11612 the Department of Defense issued two instructions: DODINSTs 5030.52 and 7700.19. DODINST 5030.52 established policy and procedures governing development of safety and health standards consistent with OSHA standards. It also established the Director of Safety Policy, Office of the Assistant Secretary (Manpower and Reserve Affairs) as the DOD point of contact with the Department of Labor for all matters concerning OSHA. DODINST 7700.19 prescribed requirements for reporting occupational illness and injury data involving DOD civilian employees. Under the provisions of the OSHA, employees (including the military) have the right to submit complaints directly to the Department of Labor (through OSHA). At present, the Department of Labor does not investigate complaints from federal employees. Instead, the complaints are returned to the agency for investigation—in the case of the Navy, through DOD. The major command is usually tasked with formal investigation, and the findings and recommendations are returned to DOD who in turn sends them to the Department of Labor.

The Criteria Document for asbestos has been adopted (with some modifications) as a standard, and is a good example of the scope of standards. It prescribes in minute detail methods and frequency of workplace monitoring. Specific requirements for physical examinations of exposed persons are included. In this case, records must be retained for 20 years. They must include as a minimum a 14" x 17" chest X-ray, a history of symptomatology of respiratory disease, and pulmonary function tests, including an expiratory volume at one second (FEV<sub>1</sub>). Examinations are required before placement, annually, and on termination of employment. The standard also includes requirements for protective clothing, caution signs and labels, and procedures for waste disposal. Requirements of the standard for asbestos were incorporated in OPNAVINST 6260.1, issued 9 April 1974. These standards are forerunners of a whole host of health standards for toxic materials and physical agents. Presumably, other instructions will be issued as more standards are promulgated.

To expedite establishment of effective controls, OSHA and NIOSH are jointly issuing "draft technical standards" for most compounds on the threshold limit value (TLV) list in a standards completion project. Standards for 14 carcinogens have been promulgated which do not contain environmental sampling requirements but prescribe physical examinations for certain workers dealing with these materials. Most health standards will prescribe specific environmental and biological monitoring with which Navy requirements will have to be "consistent." Recent criteria documents propose for inclusion in the recommended standard the concept of an "action level" (half the permissible exposure for the substance) as determinant of the point at which protective action—including ventilation, protective equipment, and medical monitoring—must be initiated. Survey reports must contain adequate documentation to support conclusions, including description of instrumentation and quantitative data.

Clearly, the next few years will present a challenge to Medical Department resources in complying with these new health and safety standards, to protect the personnel of the Navy, ashore and afloat.—Navy Environmental Health Center *Occupational Health Notes*, Vol. II, No. 3, September 1975. ☛

# Letters

## WANTED: SAC REPORTS

*To the Editor:* I have been the medical training coordinator at NRM C San Diego for the past two years, and I must say that I have obtained my most valuable up-to-date information about medical training trends and present situations from *U.S. NAVY MEDICINE*. The past articles on the Navy scholarship programs have served as my "Bible" when I interview people interested in applying for scholarships.

The speeches published in *U.S. NAVY MEDICINE* last year from the SAC meeting were also especially helpful to me. I believe I extracted more valuable information from that than the people who actually attended the SAC meeting. I sincerely hope it is repeated this year.

Ida King  
Medical Training Coordinator  
NRM C San Diego, California 92134

*A full report of the 1975 Specialties Advisory Conference and Committees' (SAC) meeting is planned for an upcoming issue of U.S. NAVY MEDICINE. [Ed.]*

## DIAGNOSIS—SPURIOUS, ACUTE

*To the Editor:* As we monitor disease occurrence around the world, we occasionally receive reports of medical incidents which defy ready categorization. Since these reports are often unique, we must suspect significant underreporting. How many Navy members, we wonder, are suffering from one of the following complaints:

- "General vira syndrome"
- "an irritation in his crutch"
- "virile hepatitis"
- "threat of dungue"
- "leprosy tuberculosis"
- "infectious disease of the body"
- "vaccination against TADBITE (2 doses)"
- "military tuberculosis"
- "German measles confirmed by Merck Manual, twelfth ed."
- "hypoglycemia"
- "presented with symptoms of flqaiyi"

Should these conditions prove to be widespread problems among Navy or Marine Corps personnel, rest assured that we will do our best to design appropriate control programs for these disxkthc.

LCDR J.L. Melton III, MC, USN  
BUMED Code 5511  
Epidemiology Section

## STUDENTS ORGANIZE

*To the Editor:* It is not only an excellent but a necessary idea that Scholarship Students organize in order to maintain closer contact with the Navy. We have done so here at the University of South Alabama College of Medicine. Gaeton Lorino and I (both senior students) are the contact points.

We had our initial meeting in September, and it proved to be quite informative. We encourage Navy-sponsored students at other medical schools to organize, too.

Charles E. Herlihy, Jr.  
123 Colvin Street  
Mobile, Alabama 36608

*To the Editor:* ENS Forman's organizational plan, "An Organizational Plan For Navy Subsidy Students," (*US NAV MED* 66[2]:26) linking Navy scholarship students with BUMED and with each other is excellent. A similar group has been established here at the University of Iowa for some time, and we would like to add these remarks.

We propose a newsletter consisting of critiques and advice regarding our various active duty experiences, mongering rumors, and generally raising consciousness. Since we have already undertaken such a project here at Iowa, we volunteer to serve as a clearinghouse for other Navy students. Just send your critiques, reports, suggestions, etc., to me, and we will distribute the compiled results.

We land-locked sailors at Iowa find "Committee of Correspondence" a little too Jacobin-Mountain for our taste. We prefer to maintain our original title, "The Iowa Fleet," steadfastly steaming through amber waves of grain.

LTJG Glenn Cunningham, MC, USNR  
415 Clark  
Iowa City, Iowa 52240



# NOTES & ANNOUNCEMENTS

## FORD SPEAKS AT 200TH BIRTHDAY

President Gerald R. Ford was guest of honor at the Navy's 200th birthday ceremonies held at the Washington, D.C., Navy Yard on 9 October 1975.

Secretary of the Navy J. William Middendorf II presented the President with a replica of a Revolutionary War Navy Jack and a display piece of ship's wood and copper taken from USS *Constitution* during her recent overhaul.

In his remarks President Ford said that the history of the Navy is the history of the United States and that the Navy "remains a symbol of the United States, of our dedicated and skilled sailors,

of our technological genius and our massive, but controlled, military strength which patrols the oceans of the world on a mission of peace."

He also said that, as Commander-in-Chief, he will do all possible to keep the Navy supplied with the best and most modern ships, weapons, training, and equipment. He added, "The most important obligation of Government is to guarantee all citizens protection of their lives and freedom against outside attack."

In closing, President Ford said, "On the 200th anniversary of our heroic Navy . . . I reject any advice to pull down the Stars and Stripes and sail home from the seas of the world to safe anchorage at home port. If we do, our homeports will no longer be safe."

## STANDARDS OF CONDUCT

SECNAVINST 5370.2E of 29 November 1967 and its enclosure, DOD Directive 5500.7 of 8 August 1967, set forth the standards of conduct governing all personnel in the naval establishment. By way of emphasis, I request that all individuals who are charged with the responsibility of leadership at all command levels personally refamiliarize themselves with these instructions and ensure strict adherence to the provisions contained therein. Particular attention should be given to those provisions dealing with acceptance of hospitality or other gratuities or favors from persons or organizations who do, or seek to do, business with the Department of Defense. Although there may have been some derelictions in the past in meeting the standards outlined in the above instructions, future compliance with the letter and spirit of these directives is absolutely mandatory.

It is essential that all in the service of the United States must be above reproach in every respect.



President Ford speaking at Washington Navy Yard, 9 Oct.

Actions which, in other quarters, might be considered an acceptable mode of conduct cannot be countenanced from those in uniform who are sworn to uphold the highest traditions of our military services or from the civilians of the naval establishment who share equal responsibilities. Each of us must set the example in this area. To that end, I solicit your total support and cooperation.

J. William Middendorf II  
Secretary of the Navy

### POSTDOCTORAL ASSOCIATESHIPS AT NAVY RESEARCH ACTIVITIES

Competitive applications are now being accepted for postdoctoral research associateships available at the following five Navy participating research activities:

- Naval Medical Research Institute, Bethesda, Maryland.
- Naval Aerospace Medical Research Laboratory, Pensacola, Florida.
- Crew Systems Department, Naval Air Development Command, Warminster, Pennsylvania.
- Naval Submarine Medical Research Laboratory, Groton, Connecticut.
- Naval Health Research Center, San Diego, California (formerly Navy Medical Neuropsychiatric Research Unit).

Associateships are awarded in the following research areas: experimental medicine, immunology, undersea medicine, aerospace medicine, behavioral sciences, biochemistry, biophysics, environmental stress, microbiology, parasitology, virology, biomagnetics, physiology, and radiation biology.

Under the associateship program, postdoctoral biomedical engineers and medical, biological, and behavioral scientists participate in biomedical research projects conducted in Naval Medical Research and Development Command laboratories. The program is a joint effect of the NMRDC and the National Research Council of the National Academy of Sciences, Washington, D.C. The Council screens candidates' records, selects applicants, and approves the scientific merits of the laboratory projects and the credentials of research advisers.

The next program begins 1 July 1976. Applications must be submitted by 15 January 1976.

Supporting documents must be received by 12 February 1976. Candidates must hold the equivalent of an M.D., D.D.S., or Ph.D. degree.

For more details on application, specific fields of interest, and a list of required supporting documents, write to: Associateship Office (JH 606), National Research Council, 2101 Constitution Avenue NW, Washington, D.C. 20418.—NMRDC Code 12.

### DENTAL CONTINUING EDUCATION COURSES SET FOR FEBRUARY

The following dental continuing education courses will be offered in February 1976:

*National Naval Dental Center, Bethesda, Maryland*

Fixed Partial Dentures	9-13 Feb 1976
Comprehensive Dentistry	23-27 Feb 1976

*Eleventh Naval District, San Diego, California*

Maxillofacial Prosthetics	23-25 Feb 1976
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*U.S. Army Institute of Dental Research, Walter Reed Army Medical Center, Washington, D.C.*

Advanced Clinical Pathology of the Oral Region	9-12 Feb 1976
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*Letterman Army Medical Center, San Francisco, California*

Periodontics	2-5 Feb 1976
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BUMEDNOTE 1500 of 12 June 1975 should be consulted when applying for dental continuing education courses, with the exception of courses administered by the Commandant, Eleventh Naval District. The latter requests should be submitted to the Commandant, Eleventh Naval District (Code 37).

Cross-country travel for dental continuing education courses and professional conferences will generally not be approved because of funding limitations. Similarly, travel from outside the Continental U.S. will generally not be approved.—BUMED Code 6.

### NRMC YOKOSUKA CELEBRATES 25TH ANNIVERSARY

On 11 September 1975 the staff of U.S. NRMC Yokosuka, Japan, observed the 25th anniversary of the commissioning of the hospital center. Com-

manding officer CAPT G.E. Gorsuch (MC) briefly reviewed the history and achievements of the hospital and region, before reading a letter of congratulations from the Navy Surgeon General. All remarks were translated into Japanese by Mr. Wasa, the community relations specialist.

Master Chief of the Command James R. Allmond made the first cut into the large center cake placed beneath the Tori Gate. Portions were also served from four surrounding cakes, representing all the hospitals and dispensaries at the Yokosuka Naval Base since 1875.

The oldest members of the civilian Japanese staff were recognized. CAPT Gorsuch expressed his special appreciation to 14 remaining Japanese plank owners for their faithful continuous service to the hospital over the past 25 years.—PAO, U.S. NRMC Yokosuka.

### MEDICAL PLANNING SEMINAR HELD

A medical planning seminar was held at Naval Amphibious Base, Little Creek, Norfolk, Virginia, on 27 August 1975. Seminar participants reviewed the medical planning sequence, logistic considerations, and coordination required in planning medical support for an amphibious landing. Plans were sufficiently detailed and complete to provide information about all aspects of medical organization, hospitalization, evacuation, preventive medicine, and medical supply. It was emphasized that all medical personnel, from the top staff physician to the platoon aid man, must be fully informed about the medical plan.

Program participants included medical and dental staff members from the Office of the Chief of Naval Operations; Headquarters, Marine Corps; U.S. Atlantic Fleet; Naval Surface Force, Atlantic; Naval Air Force, Atlantic; Fleet Marine Force, Atlantic; Second Marine Division; Force Troops, Atlantic; and NRMC Portsmouth, Virginia. Marine Corps officers from Headquarters, Marine Corps and Landing Force Training Command, Atlantic also attended.

More medical planning training courses are being developed by the Fleet Marine Force, Atlantic medical section, in conjunction with Landing Force Training Command, Atlantic, to present to members of the Navy Medical Department and other military planners within the operating forces of the Navy and Marine Corps of the Atlantic Fleet. With the exception of a few top-

level staff schools, no instructional vehicle for training in medical planning currently exists on the Atlantic coast.—CAPT E.T. Steward, MSC, USN, Senior Medical Staff Officer, FMFLANT, Norfolk, Virginia 23511.

### FIRST AID FOR "ANDY"

The scene has all the makings of a good horror movie: there's a table littered with bits and pieces of a human body; the figure of a man rests on a stretcher, tubes running from his neck to a metal box with dials.

Actually, these Frankensteinish props are plastic and rubber training aids used by the 2d Marine Division's Medical Training Section, and the scene is the advanced first-aid course for members of the 2d Reconnaissance Battalion, Camp Lejeune, North Carolina.

The Recon Marines go through the five-day course about once a month. Their classes deal with everything from the human anatomy and its relation to combat injury, to the treatment of bleeding and the use of bandages. On Wednesdays, they put what they've learned to practical use.

"The Marines take turns treating one another," explains HMC Ronald Averette, head of the



CPL John Sternad practices artificial resuscitation on "Andy." The gauge near Andy's head shows if the proper amount of air is being forced into the lungs, and if the proper pressure is being used in practicing cardiac massage. (Official USMC photo by SGT Erny Richardson.)



Medical Section. "For realism we have them use the strap-on rubber training aids that simulate various types of wounds and injuries. And of course there's Andy."

"Andy" is a dummy used for mouth-to-mouth resuscitation and cardiac massage practice. Andy is attached to a pressure gauge so the trainee can see if he's using the proper pressure for heart massage, or if the correct amount of air is being forced into the lungs.

Assisted by HM1 Fred Suttles and HM2 Mike Williams, HMC Averette also provides inservice training for all Division corpsmen. "The training of about 7,000 corpsmen is our primary mission," he says. "We offer three courses: one for E-1's to E-4's, another for E-5's and E-6's, and an instructor's training course for senior corpsmen."

The job doesn't end there. The Medical Training Section also makes transparencies and charts used as training aids, as well as over 100 lesson plans.—SGT Erny Richardson, Joint PAO, Camp Lejeune, North Carolina.

#### **"HAVE YOU HEARD?" GETS INTERNATIONAL SHOWING**

"Have You Heard?", BUMED training film MN-11259, was one of two Navy films shown in the International Military Film Festival, Versailles, France, in August. Designed for an "all hands" audience, the film depicts the hazards of high intensity noise and describes protective measures to prevent hearing loss. The 23-minute film has been distributed to film libraries at regional medical centers and naval hospitals, as well as to training aid libraries throughout the Navy. BUMED recommends that Medical Department personnel include this training film in the motivational and educational hearing conservation program support provided to commands.—K.W. Hammel, Audio-Visual Productions Div., HSETC.

#### **RANGER CREWMEN DONATE EQUIPMENT TO OLONGAPO BLOOD CENTER**

Microscopes are common laboratory equipment in hospitals and medical facilities in the United States, often taken for granted. But this is not true in many other parts of the world.

Olongapo City in the Republic of the Philippines is a case in point.

The Olongapo Chapter of the Philippine National Red Cross has operated a blood center for a number of years. Until recently blood samples were sent to Manila, some 60 miles to the south, for testing. It usually took 24 hours to get back the test results.

Aware of Olongapo's needs, the officers and men of the aircraft carrier *USS Ranger* (CVA-61) last year collected more than \$1,500 to purchase laboratory equipment for the Philippine Red Cross chapter. It was enough to buy a binocular-type microscope, a centrifuge, and a serofuge, the basic equipment the center needed to test and type blood in its own laboratory.

CAPT Samuel Youngman (MC), commanding officer of Navy Regional Medical Center Subic Bay, presented the equipment to the blood center on behalf of the *USS Ranger* crewmen, who had returned to the United States. "The donation was an outstanding gesture," CAPT Youngman said. "A lot of thought went into just how the money could be used to benefit the most people."

"The equipment will allow us to save critical time in emergency cases," said Mrs. P. San Pablo Burns, a spokesman for the center. "The blood center handles about 1,000 cases a year. With our own laboratory, we should be able to increase this workload to about 1,500 cases a year."—PAO, Commander U.S. Naval Forces Philippines.



A staff member of the Olongapo Chapter, Philippine National Red Cross, uses a microscope donated by the officers and men of the *USS Ranger*. (Photo by Ferdie Mendoza.)

## OFFICIAL INSTRUCTIONS AND DIRECTIVES

BUMEDINST 6700.16G of 29 August 1975

*Subj: BUMED-controlled medical and dental equipment items; requisitioning of*

BUMED-controlled equipment consists of standard and nonstandard medical and dental items having a unit cost of \$250 or more, whether or not on the applicable Authorized Medical and Dental Allowance List. This instruction outlines requisitioning procedures to be followed by non-BUMED command shore activities, ships, and other elements of the operating forces when requesting such equipment.

BUMEDINST 11104.1

Change Transmittal 1 of 10 September 1975

*Subj: Housekeeping Program*

Naval regional medical centers and hospitals shall maintain the highest achievable standards of cleanliness and sanitation. BUMED will support command efforts to update and achieve effective housekeeping programs. Each command shall determine the best available source of such services, and shall provide adequate staff, equipment, and supplies, or resources for commercial contract service, to support the housekeeping program.

Status of housekeeping programs shall be reported by fiscal year to BUMED Code 72 annually on 1 August using Form NAVMED 11104/1, Housekeeping Report. Revised housekeeping program criteria and guidelines on the use of commercial contract housekeeping services are included in this instruction.

SECNAVINST 6440.1A of 2 September 1975

*Subj: Navy support of the Fleet Marine Force*

Navy support of the Fleet Marine Force is not maintained at combat strength during peacetime. Therefore, in the event of deployment of these forces, immediate augmentation is necessary to bring the number of Navy personnel in the deploying units up to combat strength.

This instruction identifies approximately 2,800 Medical Department personnel in naval regional medical centers and other activities for augmentation billet requirements to fill two Marine Amphibious Forces. In the event of actual deployment, personnel assigned to this duty can expect to serve in the field with the Marines in 60-bed tent hospitals or other field medical and dental facilities. These personnel will require training in operational concepts, command relationships, medical regulating, emergency and life-saving combat care, field sanitation, and logistics.

Special three-day courses are available at the Field Medical Service Schools, Camp Lejeune, North Carolina, or Camp Pendleton, California. The "Guide for Medical Personnel Augmenting Fleet Marine and Amphibious Forces," NAVMED P-5084, provides additional practical information for Medical Department personnel designated for emergency augmentation of Amphibious and Fleet Marine Force units.

SECNAVINST 1520.8 of 12 September 1975

*Subj: Armed Forces Health Professions Scholarship Program*

The Chief, BUMED administers and manages the Armed Forces Health Professions Scholarship (AFHPS) Program, and is responsible for:

- Establishing professional criteria for selecting students;
- Preparing annual admission quotas;
- Coordinating publicity;
- Preparing the budget and approving claims for expenditures; and
- Exercising command over student officers.

The last two functions have been redesignated to the Health Sciences Education and Training Command.

The Chief, Naval Personnel provides annual recruiting quotas by designator, and also arranges military active duty for students who fail to complete the program.

The Commander, Navy Recruiting Command recruits participants and makes selections within quotas provided, processes nominations for approval by SECNAV, and notifies candidates.

The AFHPS Program is also supported by commanding officers of other Navy commands.

Candidates for scholarships must be U.S. citizens, enrolled or accepted into an approved health profession school in the U.S. or Puerto Rico. All qualified civilians may apply. Inactive USNR personnel may apply, except nuclear power trained officers eligible for reassignment to nuclear duty.

The obligated service required for program participants is set forth in DOD Directive 1215.14 of 4 February 1975. Students may be called to active service immediately upon completing the courses required for their degree, or may be allowed to continue for internship or residency training.

Scholarship students who desire internship or residency training must apply for such training in the Navy. If selected, they shall participate in an active duty status. If not selected, students may apply to remain in an inactive status or to be released from active duty to complete training in a civilian institution. If selected, students will not receive pay allowances or educational expenses from the Navy while in an inactive status; however, they will be entitled to accept stipends paid by their training institution.

AFHPS Program participants receive the pay and allowances of the grade 01 during their 45 days of active duty each year. Otherwise, they receive \$400 per month in stipend. Tuition, fees, and other ordinary, necessary, and authorized expenses (except room and board) are paid by the Navy. Students are not entitled to any promotion while in the program, and are generally not entitled to increased pay for longevity credit resulting from time spent in the program.

Each year, AFHPS students shall serve 45 consecutive days on active duty for training, which may be performed at a naval facility or vessel, or at the student's school.

Students need not wear the uniform while attending school, and need not attend drills or daily musters, or perform duties not part of the academic curriculum. The prescribed uniform will be worn during periods of military indoctrination, or clerkships at a naval institution.

BUMEDINST 4614.2B of 18 September 1975

*Subj: Uniform Material Movement and Issue Priority System (UMMIPS)*

This instruction implements OPNAVINST 4614.1E for BUMED-managed activities.

Commanding officers and officers in charge shall ensure that Issue Priority Group I (priority designators 01-03) requisition files demonstrate command review of individual requisitions. Individuals authorized to review assignments of priority designators 04-08 must be designated in writing.

Reports of suspected abuse of the UMMIPS shall be promptly investigated, and corrective action taken when required. Training requirements set forth in OPNAVINST 4614.1E shall be met.

Requisition priority data reported on the Supply Workload Summary must agree with data reported in compliance with OPNAVINST 4614.1E.

Semiannually, BUMED Code 463 will review force/activity designators (F/AD) of BUMED commands and report the results of this review to OPNAV. The Permanent F/AD V is assigned to BUMED activities in the Continental U.S. Activities in Alaska, Hawaii, and overseas areas use the F/AD assigned by the field commander.

Enclosure (1) to this instruction provides criteria for determining urgency of need designators.

BUMEDINST 1500.12A of 22 September 1975

*Subj: Equal Opportunity/Race Relation (EO/RR) Program*

Phase II of the EO/RR Program, mandatory for all BUMED activities, builds upon previous education efforts, such as Upward/Executive seminar training. Minimal components of a Phase II program are:

- An "Action to Counter Racism" workshop for middle management personnel, to be conducted by an equal opportunity program specialist.
- A "Counter Racism/Equal Opportunity" workshop for CO, XO, department heads, and other designated command representatives.
- A "Military Rights and Responsibility" workshop for E-1's through E-5's, conducted by the command training team.
- A "Cultural Expression in the Navy" workshop for all personnel, conducted by the command training team.
- An "Affirmative Action Plan Revision" workshop for CO, XO, command training team, command coordinator, and other command representatives.



Each command is required to have a command training team, consisting of at least one member from each department. Team members should be E-7's through E-9's, or O-3's and above.

The command coordinator is responsible for formulating Equal Opportunity Quality Indicators semiannually, and for collecting and correlating data from the various workshops.

Commands desiring Phase II implementation shall send requests to BUMED Code 3132/008. Requests for consultation and program development assistance shall be submitted directly from COs. CHBUMED will publish a list of medical facilities scheduled for Phase II implementation.

CHBUMED shall be informed when a designated equal opportunity program specialist reports to a command.

Commands shall send a brief narrative of Phase II implementation to BUMED Code 3132/008 within ten days of implementation.

#### BUMEDNOTE 6120 of 3 October 1975

*Subj: Flag and general officer annual physical examinations*

Medical Department facilities conducting annual physical examinations on flag and general officers must comply strictly with the requirements of MANMED art. 15-45 and 15-76. A copy of the annual physical examination report should be received in BUMED within 60 days after the officers' birthdate. If reports cannot be forwarded in time, or if the officer is admitted to the sick list or appears before a medical board, an interim report shall be submitted to BUMED Code 3322.

Copies of medical information entered in the health record subsequent to the previous annual examination, and a copy of the *entire* health record of officers receiving their first annual physical examination following promotion to flag or general rank must also be submitted.

#### BUMEDINST 7220.2 of 2 October 1975

*Subj: TAD costs for assistance during assignment hiatus, emergency or certain leave periods; funding of*

During periods of assignment hiatus, emergencies, or extended leave, temporary vacancies may

be filled on a temporary additional duty (TAD) basis. The cost of this coverage must be borne by the activity benefiting from the services of the individual assigned TAD. This does not include the current "pooling" program whereby physicians from selected regional medical centers are provided to the operating forces.

Activities shall request assignment of qualified temporary personnel from BUMED Codes 3, 6, or 7, as appropriate. Requests must contain the reason for the need, period of absence, and accounting data. BUMED shall forward accounting data to the activity providing the temporary coverage.

In case of shortage of funds, the matter shall be addressed during regular comptroller review procedures, not disregarded until the need for temporary help is imminent.

#### BUMEDNOTE 6260 of 8 October 1975

*Subj: Medical facility self-evaluation Hearing Conservation Program questionnaire*

All Medical Department activities and personnel who provide medical hearing conservation support services to line commands shall use the medical facility self-evaluation Hearing Conservation Program questionnaire included in this notice as a guide in evaluating whether the services they provide are adequate. Positive responses to all questions should indicate that the hearing conservation support services provided comply with BUMEDINST 6260.6B, Hearing Conservation Program.

#### HOW TO ORDER INSTRUCTIONS AND NOTICES

If your facility does not have copies of BUMED *Instructions* described above, you may order them from: Commanding Officer, Navy Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, Pennsylvania 19120.

Copies of current BUMED *Notices* may be ordered from: Department of the Navy, Bureau of Medicine and Surgery (Code 0113), Washington, D.C. 20372.

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   Pensacola, Fla. 2:35  
 Thomas, G.J. III, LCDR, MC, USNR, definitive treatment of  
   compartment compression syndrome of the leg 6:4  
 Todd, J.E., CAPT, MC, USNR, first woman physician to enter  
   the Navy as a direct appointment captain 3:28

**Training**  
 courses  
   AFIP offers postgraduate training 5:29  
   Clinical and Research Aspects of Dermatology, Pathology,  
   and Pediatrics in the Tropics 1:29  
   dental continuing education courses 3:39, 4:26, 5:29,  
   6:24  
   Hospital Corps training in specialties 4:25  
   nursing workshops at NRMCMC Portsmouth, Va. 4:24  
   dental ACDUTRA sites designated 5:28  
   Dental Corps casualty treatment program 4:27  
   diabetic education series at NRMCMC Memphis 5:30  
   film "Have You Heard," depicts the hazards of high inten-  
   sity noise 6:26  
   first aid in artificial resuscitation 6:25  
   hospital corpsmen formal training in electrocardiography  
   discontinued—BUMEDNOTE 1510 5:34  
   Medical Department education and training programs—  
   BUMEDNOTE 1500 4:35  
   Medical Service Corps full-time training program—BUMED-  
   INST 1520.12F 2:38  
   Travel costs of Army and Air Force patients in naval activities,  
   temporary duty—BUMEDINST 7301.3W 4:36  
 Tuberculosis Control Program—BUMEDINST 6224.1D 5:33

**Tumors**  
   malignant neoplasms of the small bowel: failure of early  
   diagnosis to improve prognosis 2:22

**UNIFORMED SERVICES University of the Health Sciences**  
 (USUHS), groundbreaking ceremonies 2:28, 3:4  
 Uniform Material Movement and Issue Priority System  
 (UMMIPS)—BUMEDINST 4614.2B 6:28  
 U.S. Naval Hospital, Subic Bay, Republic of the Philippines,  
   Filipino physicians training 4:21  
 U.S. Naval Regional Medical Center Yokosuka, Japan, cele-  
   brates 25th anniversary 6:24

**VACCINE** status for influenza disease, 1975-1976 season—  
 BUMEDNOTE 6220 4:37  
 Vernikos-Danellis, J., Ph.D., the physiological cost of flight  
   stress and flight fatigue 4:12  
 Veterinary medical support to naval activities, military—  
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**WATSON, N.J., LCDR, MC, USNR, reducing delays in early**  
 coronary care 5:23  
 Whipple, D., Ph.D., the perceived quality of health care and  
   use of military health facilities 4:3  
 Whitehurst, G.W., Congressman, addresses the 76th graduating  
   class of dental officers at NNDC, Bethesda 3:40

**Women**  
   first black woman to be commissioned in the Navy Medical  
   Corps 1:32  
   first woman dental graduate of Georgetown University to  
   join the Navy Dental Corps 3:40  
   first woman to enter the Navy as a direct appointment  
   captain 3:28  
   five women dental officers commissioned 5:29  
 Workman, M.L., DT3, USN, receives Navy Commendation  
   Medal 4:27

**X-RAY** fluorescence analysis may aid medical research 5:25

**YOUTH**  
   adolescent clinic at NRMCMC Oakland, Calif. 2:32  
   Medical Explorer Program of the Boy Scouts of America—  
   BUMEDNOTE 5726 4:36

**ZENTMYER, R.K., LCDR, MSC, USN, health care evaluation:**  
 it really works 2:9

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#### NEWPORT BICENTENNIAL BIRTHDAY BABY



Johanna Lohrmann has been named Bicentennial Birthday Baby by NRMCM Newport, Rhode Island. The 9 lb 4½ oz newcomer was born at the medical center at 0508 on the Navy's 200th birthday—13 October 1975. Among the gifts awaiting the Bicentennial Birthday Baby were a plaque, a special birth certificate signed by the Navy Surgeon General, and a letter of introduction from the Commander, Naval Recruiting Command, Washington, D.C., for Johanna to use in 1993 when, at age 18, she may wish to join the Navy. Johanna also received gifts from local businesses.

Shown above with LT Lohrmann (left), his wife, and Johanna, are LT John McGilbvray, Navy Recruiting Office, Providence; CAPT Mary T. Lynch (MC), acting director of clinical services (and former editor of *U.S. Navy Medicine*); and CAPT Patrick O'Halloran (MC), chief of Obstetrics/Gynecology, who was the first to welcome Johanna aboard.—PAO, NRMCM Newport, R.I.

U.S. NAVY MEDICINE